Thomas' return marks 812 consecutive days in orbit

(Continued from Page 1)

up a 10-day, 3.8-million-mile mission. Astronaut Andy Thomas sat in *Discovery*'s middeck in a special recumbent seat to help ease his initial exposure to gravity, returning to Earth after 141 days in space, 130 as a Mir crew member. He traveled about 56.4 million miles during his time in space.

Precourt, Ryumin, Pilot Dom Gorie and Mission Specialists Franklin Chang-Díaz, Wendy Lawrence and Janet Kavandi arrived home in Houston on Saturday and was greeted by friends, family members and co-workers at Ellington Field. Thomas, however, waited in Florida until Sunday before returning to Houston, saying that his readaptation to gravity was making him tired and nauseous.

"I'm sorry I couldn't make it last night," Thomas said Sunday. "If you had seen me about this time yesterday, I was not a pretty sight."

"I expected it to be difficult," Thomas said of his readjustment to gravity. "But what surprised me was that when I landed I felt everything was fine and that this would be easy. It was actually three or four hours after landing, when I started to stand up, that I started to get these vestibular twinges. Standing was not a good idea."

Thomas' return to Earth marked the end of a consecutive 812-day U.S. presence in space and 802 consecutive days on the Mir by a U.S. astronaut. Since 1995, seven U.S. astronauts—Norm Thagard, Shannon Lucid, John Blaha, Jerry Linenger, Mike Foal, David Wolf and Andy Thomas—spent a total of 907 days as Mir crew members.

"Everybody keeps talking about ends and how we're ending," Precourt said at Ellington. "But really we're not. We're beginning. We're beginning a new program with out international partners in Phase 2. This is just a stepping stone to that."

Left behind on the orbiting Russian outpost when *Discovery* undocked June 8 were Mir 25 Commander Talgat Musabayev and Flight Engineer Nikolai Budarin. They are scheduled to return to Earth in August, to be replaced by another cosmonaut team.

Thomas faces a 45-day regimen of physical rehabilitation following his long stay in weightlessness.

Discovery docked with Mir at 11:58 a.m. June 4, and at 1:34 p.m. the hatches between *Discovery* and Mir swung open. Precourt exchanged handshakes and embraces with Mir 25 Commander Talgat Musabayev as Thomas officially became a member of *Discovery*'s crew.

When the two vehicles undocked over Russia, *Discovery*'s crew had transferred some 1,200 pounds of water and almost 4,700 pounds of resupply material or return items.

With one exception, the STS-91 mission was a smooth one. Shortly after liftoff, flight controllers reported they were unable to fully activate the Ku-band antenna system used to relay high-rate data and television signals to the ground. Important events were documented using the Mir television system and Russian ground stations.

In addition, scientists working with the Alpha Magnetic Spectrometer were limited in their ability to see data from the innovative particle detector in the cargo bay. The team, led by Nobel laureate Dr. Dr. Samuel Ting, was able to verify the instrument was working as expected through about 100 minutes of downlink data. AMS, investigating the existence of dark matter and antimatter in the universe, recorded more than 100 hours of observations during the flight.

STS-91 crew to share images, experiences

The STS-91 crew will share bittersweet memories of the final shuttle-Mir docking mission at 7:30 p.m. Monday, June 29, in Space Center Houston's IMAX Theater.

Commander Charlie Precourt, Pilot Dom Gorie, Mission Specialists Franklin Chang-Díaz, Janet Kavandi, Wendy Lawrence, Valery Ryumin, and returning Mir resident Andy Thomas will share photos and experiences from from the 10-day mission aboard *Discovery* that landed June 12.

Immediately prior to the briefing, JSC Director George Abbey will recognize key individuals and teams for their outstanding contributions to the flight. Abbey also will recognize the astronauts' accomplishments with the presentation of their NASA Space Flight Medals. The program will conclude with a showing of the IMAX movie "Mission to Mir."

Limited seating will be available for the program, which is open to JSC employees, family members, friends, contractors both on and off site, and the public. Doors open at 7 p.m. and seating is first-come, first-served. Admission and parking at Space Center Houston are free. For details call Helen Harris at x38413.

NASA Photo s98-07969 by Robert Markowitz

NEXT MISSION—Crew trainer Adam Flagler, left, checks out STS-95 Payload Specialists Chiaki Mukai and John Glenn as they practice launch and entry procedures June 5 in one of the Bldg. 9 shuttle training mockups. The STS-95 mission, tentatively scheduled for launch on Oct. 29, will involve a variety of science experiments being carried in the pressurized Spacehab module, deployment and retrieval of the Spartan free-flyer payload, and operations with the HST Orbiting Systems Test and the International Extreme Ultraviolet Hitchhiker payloads. Astronaut Curt Brown will command the mission and fly the shuttle with the help of Pilot Steve Lindsey. Also aboard will be Mission Specialists Scott Parazynski, Steve Robinson and Pedro Duque from the European Space Agency.

Mott leaves NASA to take Boeing job

Mike Mott, NASA associate deputy administrator (technical), will leave NASA to join Boeing Space Transportation, Seal Beach, Calif., as vice president of business development.

Mott, one of the agency's top three managers, has served the NASA administrator since January 1994.

"Mike has been a valuable asset to NASA, and his contributions will be sorely missed," Administrator Daniel S. Goldin said.

Mott served in the Marine Corps in numerous assignments throughout the U.S. and the western Pacific. He graduated from the U.S. Naval Test Pilot School, participated in 89 major flight test projects, and commanded Marine Aircraft Group 41 at Andrews Air Force Base. He has more than 3,800 flight hours in 62 types of aircraft and 210 carrier landings.

Baltimore institute to manage next Hubble

The duties of the Space Telescope Science Institute in Baltimore, Md., will be expanded to include the management of science operations for the Next Generation Space Telescope, NASA officials announced last week.

The Space Telescope Science Institute, located at the Johns Hopkins University, has been operating the science program for the Hubble Space Telescope since 1983.

The NGST is one of the cornerstone missions of the Astronomical Search for Origins and Planetary Systems, one of the major thrusts of NASA's Space Science program. The NGST will provide a critical follow-on to Hubble, and continue to deliver world-class optical and infrared science well into the second decade of the new millennium.

"We looked through a microscope to decide who would operate the Next Generation Space Telescope," said NASA Administrator Daniel S. Goldin. "NASA and the scientific community had to determine who had the right facilities, who had the right experience, who was the best. The clear choice was Baltimore's Space Telescope Science Institute."

A goal of the Next Generation Space Telescope is to observe the first stars and galaxies in the universe to further understanding of how it formed following the theorized "Big Bang." NGST will have capabilities currently unavailable in existing ground-based or space telescopes.

NGST studies are under way and NASA plans to start formal development of the NGST in 2003, with a projected launch in 2007.

Smoke from Mexican fires prompts study

Since the beginning of the Mexican fires in late March and early April of this year, atmospheric researchers at NASA using the Total Ozone Mapping Spectrometer, have been closely monitoring the fires and the smoke aerosols emitted by the fires.

The smoke has been thick enough to be easily visible on the ground and resembled a light haze to medium fog in parts of Texas, Georgia and Florida. In the Houston area, public health officials issued warnings to remain indoors to avoid adverse health impacts, such as asthma, from the smoke.

TOMS obtains daily images of the amount of smoke present in the atmosphere anywhere in the world. Scientists have a keen interest in smoke aerosols generated by fires like those in Mexico because smoke contributes to the overall global air-pollution levels that can impact the quality of air that humans breathe. Increased smoke concentration from human-induced fires also could contribute to global climate change.

The fires started in southern Mexico and northern Guatemala near the end of March 1998. Though most of the fires were started as part of the annual clearing of agricultural fields, some started naturally because of the extremely dry conditions. The dry conditions are associated with the El Niño weather patterns similar to those that caused fires in Indonesia earlier this year.

The small particles, called aerosols, that comprise smoke can affect the amount of energy reaching the Earth's surface by reflecting and/or absorbing sunlight. Smoke aerosols also can act as small particles upon which clouds can form. Clouds containing smoke aerosols are believed to reflect and absorb energy in different ways than clouds formed from natural particles such as dust or sea salt.

"Shortly after the fires started, we noticed the increased amount of aerosols (in this case smoke) in the region," said Dr. Jay R. Herman, an atmospheric scientist at Goddard Space Flight Center. "By mid-April large amounts of smoke were covering parts of Mexico with plumes extending into Florida, Texas, New Mexico, California and Wisconsin."

Because of the difficulties in extinguishing the fires, the large smoke plumes are still present in Mexico. The smoke tends to extend from the ground up to an altitude of about three kilometers (1.8 miles) and follow the prevailing winds. Due to wind shear in this altitude range, there is frequently more than one plume, with smoke blowing from west to east and from south to north. With prospects of rain slim due to the El Niño-driven drought, scientists believe the smoke may linger for a long time.

TOMS is part of NASA's Earth Science strategic enterprise, a long-term, coordinated research effort to study the Earth as a global system. TOMS images of the smoke plumes are available on the Internet at:

http://jwocky.gsfc.nasa.gov

Baker leads human space flight in Russia

NASA has formed an Office of Human Space Flight Programs, Russia, to oversee the transition from the Phase 1 Program to the assembly and operation of the new International Space Station.

Astronaut Mike Baker, a Navy captain, leads the office. Baker recently was named assistant director to JSC Director George Abbey to supervise the transition of human space flight initiatives associated with the cooperative effort.

Baker is NASA's lead representative to the Russian Space Agency and its contractors on operational issues as part of NASA's Human Exploration and Development of Space initiative. This places Russian liaison for all human space flight operations and initiatives under one office and consolidates preparations for the assembly of the International Space Station, including mission operations, crew training, logistics and technical liaison activities with Russian space organizations.

"It is critical to ensure a seamless transition takes place between the successful Phase One program and the start of construction of the International Space Station," Abbey said. "With this new office, the ISS program can take advantage of the knowledge and momentum gained from Phase 1 under the direction of Frank Culbertson. Baker's leadership and expertise provide the framework to coordinate activities with our Russian colleagues and provide him the unique opportunity to bring the operations team together for this project," Abbey said.

Baker also is responsible for astronaut training at the Gagarin Cosmonaut Training Center at Star City and all NASA mission operations functions at Mission Control in Korolev.

Astronaut Jim Halsell, an Air Force lieutenant colonel, is serving as the director of operations in Russia. Tom Cremins will serve on Abbey's staff in Houston as Baker's deputy.

JSC's Mission Operations Directorate also has opened a new NASA Training Office in Star City. The office includes four instructors, one schedule coordinator, a training division management representative and other personnel supporting the ISS Expedition Astronauts during their training.

Space station instructors Chris Niemann, left, and Ginger Kerrick hang the Space Flight Training Division and Mission Operations Directorate plaques at the new NASA Training Office in Star City, Russia.